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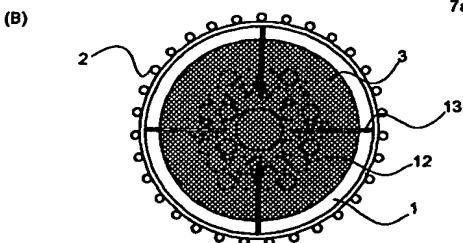
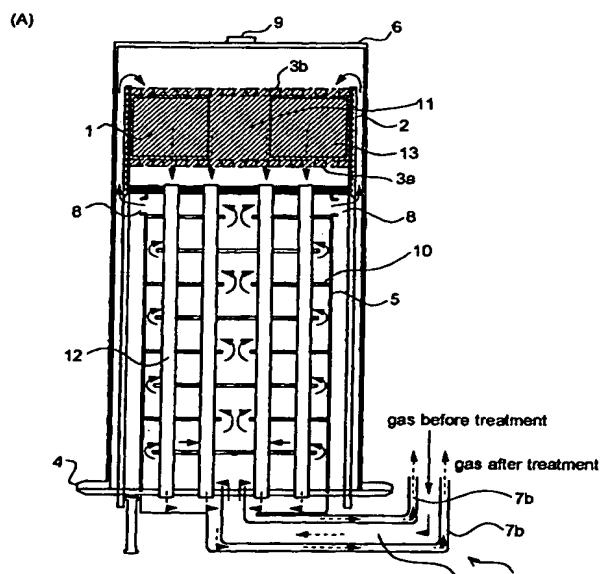
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(54) Title: REACTION APPARATUS WITH A HEAT-EXCHANGER



(57) **Abstract:** A reaction apparatus comprising a heat exchanger 5 and a reactor 1 with a heater 2, which are enclosed in an outer casing 6, the top of the heat exchanger 5 being connected to the reactor 1, the other end part of the heat exchanger 5 and the bottom of the outer casing 6 being fixed to each other by a flange 4, and a double piping 7 for introducing a gas to be treated and discharging the treated gas being connected to the other end part of the heat exchanger 5, such that the gas passes through the heat exchanger 5, the reactor 1 and the heat exchanger 5 during the process from introducing gas through one of the inner tube and the outer tube in the double piping to discharging the gas through the other tube, and reaction method using the apparatus. Using the apparatus of the present invention, the temperature distribution inside the reactor can be kept uniform and efficiency in energy recovery is enhanced.

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